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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,402	02/28/2002	Kevin T. Lefebvre	100110671-1	1331

7590 10/12/2004

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EXAMINER	
NGUYEN, KIMBINH T	
ART UNIT	**PAPER NUMBER**
2671	

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/086,402	LEFEBVRE ET AL.	
	Examiner	Art Unit	
	Kimbinh T. Nguyen	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to amendment filed 08/12/04.

2. Claims 1-23 are pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 6, 8, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (5,982,375) in view of Geshwind (6,590,573).

Claim 1, Nelson et al. discloses generating three-dimensional data defining a non-stereo image (col. 1, lines 20-23; col. 2, lines 22-24); assigning a first screen portion to a first rendering node (convey final left eye view data to rendering unit 570; fig. 6); assigning a second screen portion to a second rendering node (convey final right eye view data to rendering unit 590; fig. 6; col. 11, lines 43-48); rendering left and right images by the first and second rendering node (render left/right images on display device 610; fig. 6; col. 12, lines 7-8); Nelson does not teach assembling the left image portion and the right image portion into the composite image; however, Geshwind teaches assembling the left image portion and the right image portion into the composite image (composite the left image and the right image: odd and even fields of a video frame for creating stereoscopic image or the composite image; col. 4, line 62 through col. 5, line 67; figs. 1A-1D). It would have been obvious to one of ordinary skill

in the art at the time the invention was made to incorporate the 3D composite image taught by Geshwind into method of rendering stereo image pairs of Nelson's method for compositing left and right pair of images, because it would provide techniques and devices for creating and/or delivering 3D image elements from 3D images or integrated with pre-existing 3D image information created independent of the system (col. 2, lines 2-9).

Claims 2, 8, Nelson et al. teaches generating 3D data comprising RGB data and depth data defining the non-stereo image (col. 7, lines 10-15).

Claims 3, 4 and 16, Nelson does not teach x-axis offset and y-axis offset; however, Geshwind teaches assigning, at an offset from the first screen portion, the second screen portion to the second rendering node (col. 2, lines 31-34); assigning the second screen portion at an x-axis offset (offset in the horizontal direction; col. 2, line 32) and a y-axis offset from the first screen portion (offset down and right or up or left; col. 16, lines 32-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the x-axis offset and y-axis offset taught by Geshwind into method of rendering stereo image pairs of Nelson's method for compositing left and right pair of images, because using offset, it would achieve real-time or near real time compositing of many separate and separately offset image (col. 14, lines 34-35).

Claim 6, Nelson et al. discloses a processing element (host CPU 102; col. 4, lines 13-14); and a memory module maintaining a stereo transform application executable by the processing element (col. 2, lines 49-51), the stereo transform

application operable to receive 3D data defining a non-stereo image (the processor enables stereo mode and to execute an application for rendering objects on the display screen in the stereo mode; abstract), Nelson does not suggest a composite image; however, Geshwind teaches process the three-dimensional data and provide output of at least one of a left channel image and a right channel image of a composite image comprised of the left channel image and the right channel image (col. 14, lines 34-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the compositing image as taught by Geshwind into the stereo transform application of Nelson, because it would create 2D computer rendered images from 3D models such that the perspective view of each corresponds to the view as seen by the left and right eye of the viewer. Such image pairs may be displayed by true 3D display system to achieve synthetic stereoscopic imagery (col. 4, lines 24-27).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (5,982,375) in view of Geshwind (6,590,573) and further in view of Tabata (6,111,597).

Claim 5, Nelson does not teach composite image; however, Tabata teaches generating 2D data defining a window in which the composite image is to be rendered (col. 10, lines 26-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate generating 2D data defining a window for rendering the composite image taught by Tabata into stereo mode of Nelson for forming stereo image, because generating two pieces of 2D image data, it is necessary for

stereo viewing stereo-modeled objects in a virtual space to form a stereo image (col. 10, lines 27-28).

6. Claims 7, 9-15, 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (5,982,375) in view of Geshwind (6,590,573) and further in view of Bowen et al. (6,147,695).

Claim 7, Nelson does not teach a graphics pipeline; however, Bowen et al. discloses a pipeline hardware operable to transmit the output to a compositing node operable to assemble the output with an output from another node into a composite image (col. 17, lines 51-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a graphic pipeline as taught by Bowen into the displaying the stereo mode of Nelson's method, because it would improve performance for rendering object to be viewed in the stereo mode (col. 1, lines 10-11).

Claims 9-12, Nelson does not teach an application programmer's interface; however, Bowen discloses the memory module further maintains an application programmer's interface layer in communication with the stereo transform application (communication interface 924), the three-dimensional data provided to the stereo transform application via the application programmer's interface (col. 18, lines 16); the application programmer's interface comprises an instance of an OpenGL protocol layer (col. 4, lines 17-22; lines 52-58); the application that controls a bitmap display is an instance of X server executable by the processing element (col. 14, lines 4-14); the memory module maintains an application (frame buffer environment) that controls a

bitmap display (textured, color images) that receives and processes two-dimensional data associated with the three-dimensional data (col. 17, lines 53-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an application programmer's interface, an OpenGL protocol layer as taught by Bowen into the displaying the stereo mode of Nelson's method, because it would improve performance for rendering object to be viewed in the stereo mode (col. 1, lines 10-11).

Claim 13, Nelson does not teach a network; however, Bowen et al. discloses a network (network-based computer system; col. 13, lines 60-64) and a combining two images (col. 15, lines 20-21). Further, the rationale provided in the rejection of claims 1, 2 and 6 is incorporated herein. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the network-based system as taught by Bowen into the displaying the stereo mode of Nelson's method, because it would improve performance for rendering object to be viewed in the stereo mode (col. 1, lines 10-11).

Claim 14, Nelson et al. teaches a master node (host CPU 102; fig. 2) running an instance of a non-stereo graphics application, the master node (using graphics accelerator renders left and right images) operable to provide the data defining the three-dimensional non-stereo image (col. 4, lines 60-63) to each of the first and second rendering nodes (stereo glasses 92; fig. 1).

Claim 15, Nelson does not teach a composite image; however, Geshwind teaches the left channel image and the right channel image are assigned to respective portions

of the composite image (col. 16, lines 59-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the compositing image as taught by Geshwind into the stereo transform application of Nelson, because it would provide techniques and devices for creating and/or delivering 3Dimage elements from 3D images or integrated with pre-existing 3D image information created independent of the system (col. 2, lines 2-9).

Claim 18, Nelson does not teach a composite image; however, Geshwind teaches sequentially assembling (from figs. 1A-1D) the left image portion and the right image portion into the composite image (col. 4, line 62 through col. 5, line 67; figs. 1A-1D). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the 3D composite taught by Geshwind into method of rendering stereo image pairs of Nelson's method for compositing left and right pair of images, because it would provide techniques and devices for creating and/or delivering 3Dimage elements from 3D images or integrated with pre-existing 3D image information created independent of the system (col. 2, lines 2-9).

Claim 19, the rationale provided in the rejection of claim 1 is incorporated herein. In addition, Nelson does not teach rendering by the first graphics pipeline and rendering by the second graphics pipeline; however Bowen et al. teaches graphics pipeline 930 in fig. 9 corresponding to a graphics pipeline in fig. 1; figure 1 illustrates a general pipeline hierarchy for a typical display system (col. 17, lines 51-67), and the system would inherit the graphics pipeline to render pixels of a first image and second image which corresponding with a left image portion and a right image portion in the Nelson's

teaching. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a graphics pipeline as taught by Bowen into the displaying the stereo mode of Nelson's method, because it would improve performance for rendering object to be viewed in the stereo mode (col. 1, lines 10-11).

Claims 20-23, the rationale provided in the rejection of claims 2-5 is incorporated herein..

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (5,982,375) in view of Geshwind (6,590,573) and further in view of Grapes (6,446,130).

Claim 17, Nelson does not teach a remote node; however, Grapes discloses a remote node, the compositor node operable to transmit the composite image to the remote node (remote data transmission line, and requires an Ethernet adapter to transfer the information through the system; col. 2, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the transmitting the compositing image as taught by Grapes into network of Nelson's method, because it would provide multiple streams of content to users of the systems, allowing the users interact with the system (abstract).

Response to Arguments

8. Applicant's arguments filed 08/12/04 have been fully considered but they are not persuasive because the following reasons:

With respect to applicant's arguments, claim 1, Nelson's invention relates to a 3D graphics accelerator which includes improved performance for rendering objects to be viewed in stereo mode (col. 1, lines 7-11). The computer system includes: rendering a first screen portion to a first rendering node (the left eye view data to rendering unit 570; fig. 6); rendering a second screen portion to a second rendering node (the right eye view data to rendering unit 590; fig. 6; col. 11, lines 43-48); rendering left and right images by the first and second rendering node (rendering left/right images on display device 610; fig. 6; col. 12, lines 7-8); Nelson does not teach assembling the left image portion and the right image portion into the composite image; however, Geshwind teaches assembling the left image portion and the right image portion into the composite image (composite the left image and the right image: odd and even fields of a video frame for creating stereoscopic image or the composite image; col. 4, line 62 through col. 5, line 67; figs. 1A-1D). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the 3D composite image taught by Geshwind into method of rendering stereo image pairs of Nelson's method for compositing left and right pair of images, because it would provide techniques and devices for creating and/or delivering 3D image elements from 3D images or integrated with pre-existing 3D image information created independent of the system (left image portion and right image portion) (col. 2, lines 2-9). The rejection and the motivation to combine Nelson and Geshwind teachings as proposed by the examiner is proper because Nelson uses graphics accelerator includes a buffer for storing and received geometric primitive to render left image and right image, the purpose of Nelson's

teaching is to improve performance for rendering objects to be viewed in stereo mode: "graphics accelerator 112, when operating in stereo mode, renders a left and right eye image of the geometric primitive defined by the graphics application program" (col. 4, lines 60-63) and Geshwind incorporates into the Nelson's system by compositing the left image and the right image to produce the composite image by taking into account left/right images shift, the even/left image field and odd/right image field will be register... (see col. 5, line 1 through col. 6, line 14); "the composite image will the appear to be "inside' the video display... the composite image will then appear to come out the CRT into "room space'", col. 5, lines 57-67. It is possible to form a stereoscopic 3D display by creating a left and right image pair interleaved into the even and odd field of a video display (Geshwind, col. 1, lines 52-55), and further Geshwind also teaches that: it is possible to create two 2D computer rendered images from 3D models, such that the perspective view of each corresponds to the view as seen by the left and right eye of the viewer. Such image pairs may be displayed by true 3D display systems to achieve synthetic stereoscopic imagery (col. 4, lines 23-28). The arguments of claims 6, 13 and 19 are explained under the same reasons as claim 1 above.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kimbinh Nguyen** whose telephone number is **(703) 305-9683**. The examiner can normally be reached **(Monday- Thursday from 7:00 AM to 4:30 PM and alternate Fridays from 7:00 AM to 3:30 PM)**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Part II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 5, 2004

/Kimbinh Nguyen/

Kimbinh Nguyen

Patent Examiner AU 2671